AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraphs beginning at page 17, lines 14-20 with the following amended paragraph:

The "*primer*" is any primer on which telomerase elongation activity may take place and in particular is:

5'TTTTTTAATCCGTCGAGCAGAGTT (SEQ ID NO: 1)

The primer may be immobilized on any surface such as walls of a vessel, beads, etc. by any means known for immobilization of nucleic acid sequences.

Please replace the paragraph beginning at page 19, lines 14-17 with the following amended paragraph:

Fig. 1 shows a scheme illustrating two embodiments of the invention. Fig. 1A illustrates analysis of DNA by opening of a beacon nucleic acid and the generation of a DNAzyme (in which (1), (2), (2a), and (2b) correspond to SEQ ID NOs: 2, 3, 4, and 5, respectively), while Fig. 1B illustrates analyzing telomerase activity by a functional DNA beacon that self-generates a DNAzyme (in which (5) and 6) correspond SEQ ID NOs: 6 and 7, respectively);

Please replace the paragraph beginning at page 20, lines 9-18 with the following amended paragraph:

Figs. 4, 5 and 6 show schemes illustrating further embodiments of the invention. **Fig. 4A** shows the suggested G-quadruplex/hemin structure of the DNAzyme (in (1) and (2), correspond to SEQ ID NOs: 8 and 9, respectively). **Fig. 4B** shows chemiluminescence generated by a nucleic acid/hemin supramolecular complex and the inhibition of the DNAzyme activity by hybridization (in which (1), (2), and (4) correspond to SEQ ID NOs: 8, 9, and 10, respectively). **Fig. 5** shows the reconstitution of nucleic acids on a hemin monolayer modified surface and the generation of a biochemiluminescence DNAzyme and the inhibition of the process by hybridization (in which (1), (2), and (4) correspond to SEQ ID NOs: 8, 9, and 10, respectively). **Fig. 6** shows the assembly of a nucleic acid/hemin complex on an electrode for the electrochemical generation of chemiluminescence and the inhibition of the process by hybridization (in which (6), (7), and (8) correspond to SEQ ID NOs: 11, 12, and 13, respectively);

Please replace the paragraph beginning at page 21, lines 15-17 with the following amended paragraph:

Fig. 10 shows the method of the invention wherein a plurality of nucleic acid peroxidases are present on a "bead-like" gold structure for amplification of the signal (in which (1), (2), and (3) correspond to SEQ ID NOs: 14, 10, and 15, respectively);

Please replace the paragraph beginning at page 21, lines 20-22 with the following amended paragraph:

Fig. 12 is a schematic drawing illustrating the analysis of telomerase activity using DNAzyme labels and chemiluminescence as a detection signal (in which (5) and (7) correspond to SEQ ID NOs: 16 and 17, respectively, and (6) corresponds to nucleotides 21-26 of SEQ ID NO: 7); and

Please replace the paragraph beginning at page 22, lines 11-18 with the following amended paragraph:

Nucleic acids were synthesized by Sigma Genosys. They were purified using the PAGE method. The sequences of the oligomers are given below:

(1) 5'-CGATTCGGTACTGGCTCAAAATGRGGAGGGT-3' (SEQ ID NO: 8)

(2) 5'-AGGGACGGGAAGAAAGATAATGCGCATGCTCAA-3' (SEQ ID NO: 9)

(4) 5'-TGAGCATGCGCATTATCTGAGCCAGTACCGAATCG-3' (SEQ ID NO: 18)

(6) 5'-HS$(CH_2)_6$CGATTCGGTACTGGCTCAAAATGRGGAGGGT-3' (SEQ ID NO:11)

(7) 5'-AGGGACGGGAAGATGAGCCAGTACCGAATCG-3' (SEQ ID NO: 12)

(8) 5'-TGAGCCAGTACCGAATCG-3' (SEQ ID NO: 13)